

REMARKS

Claims 21, 27, 47, 48, 49, 51, 53, 54, and 55 have been canceled. Claims 59-62 have been added to round out the scope of protection for the invention. No new matter has been introduced. Claims 52 and 56-62 are currently pending.

Claims 21, 47, 48, 49, and 51 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Pub. App. No. 2004/0080006 (Yamamoto). Claims 27, 53, 54, and 55 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yamamoto in view of U.S. Patent No. 6,188,094 (Kochi). Claims 21, 27, 47, 48, 49, 51, 53, 54, and 55 have been canceled, rendering the rejections moot.

Claims 52, 56, 57, and 58 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yamamoto and U.S. Patent No. 6,034,407 (Tennant). The rejection is respectfully traversed.

As best understood by Applicant, Yamamoto relates to an image sensor having concave-shaped micro-lenses. *See* Yamamoto at Title. As admitted by the Office Action (at 5), Yamamoto fails to teach that “a portion of [a] second light conductor over said planar surface of [a] first light conductor has a thickness approximately equal to $\lambda/2 * N$, wherein λ refers to a particular wavelength of light entering the microlens, and N refers to an index of refraction associated with the second light conductor,” as recited by claim 52.

To allegedly “fill the gap” between Yamamoto and the claimed invention, the Office Action (at 5) attempts to combine Tennant with Yamamoto. Applicant respectfully submits that the Office Action has failed to provide a *prima facie* case of obviousness. The Supreme Court recently held in *KSR Int'l Co. v. Teleflex Inc.* that “the [*Graham*] factors continue to define the inquiry that controls a finding of obviousness.” 127 SCt 1727, 82 USPQ2d 1385, 1397 (2007). The *Graham* factors include determining the scope and content of the prior art, ascertaining differences between the prior art and the claims at issue, and resolving the level of ordinary skill in the pertinent art. *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966); *see also* MPEP 2141.01. Applicant submits that the Office Action has not shown that the claims would have been obvious by conducting a full examination of the *Graham* factors. Specifically, the Office Action has not

explicitly or implicitly resolved the level of ordinary skill in the pertinent art nor has it ascertained the “differences between the prior art and the claims at issue.”

Furthermore, “[r]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” MPEP 2141.01 (quoting *KSR* 127 SCt 1727, 82 USPQ2d 1385). In this case, the Office Action has failed to articulate its reasoning for combining the two references, and simply states “that discovering an optimum value of a result effective variable involves only routine skill in the art.” This, however, is not the standard.

Applicant respectfully submits that the references are not properly combinable, and, even if they were, which they are not, the combination fails to disclose, teach, or suggest each and every limitation of claim 52. As best understood by Applicant, Tennant relates to multi-spectral planar photodiode infrared radiation detection pixels. *See* Tennant at Title. According to Tennant, its pixel 10 includes a buffer layer 25 designed to absorb short wavelength infrared radiation (SWIR), a color layer 27 designed to absorb medium wavelength infrared radiation (MWIR), and a second color layer 31 designed to absorb long wavelength infrared radiation (LWIR). *See* Tennant at 3:57-67; *see also id.* at FIG. 2.

As best understood by Applicant, Yamamoto teaches an image sensor having color filters associated with each of its pixels. *See* Yamamoto at [0014]. According to Yamamoto, the color filters are “pigmented or dyed material that will *only* allow a narrow band of light to pass therethrough.” *Id.* (emphasis added). Accordingly, while Yamamoto allows *only* a narrow band of light to pass through its color filter, thereby allowing only a *single* narrow band of light to strike its light sensitive element, Tennant specifically teaches the absorption of *multiple* bands of infrared radiation by its detector pixels. As such, the two references teach away from one another. Moreover, combining the references would destroy the teachings of each. Applicant respectfully submits that the references are not properly combinable for at least these reasons.

In addition, even if combinable, which they are not, the references fail to disclose, teach, or suggest the claimed invention. Tennant’s FIG. 4 (reproduced below) shows a buffer layer 25a

designed to absorb short wavelength infrared radiation (SWIR), a color layer 27a designed to absorb medium wavelength infrared radiation (MWIR), and a second color layer 31a designed to absorb long wavelength infrared radiation (LWIR). *See* Tennant at 4:59-67. As MWIR penetrates the substrate 20a and buffer layer 25a, it is absorbed by color layer 27a. *See id.* at FIG. 4. As LWIR penetrates the substrate 20a, buffer layer 25a, and color layer 27a, it is absorbed by second color filter 31a. *See id.* According to Tennant, the cross-sectional thickness of color filter 27a can be varied to ensure that there is no cross-talk from the first color penetration into the second color layer 31a (i.e., that the MWIR is absorbed by color filter 27a to prevent MWIR from reaching second color filter 31a). *See* Tennant at 5:65-6:6.

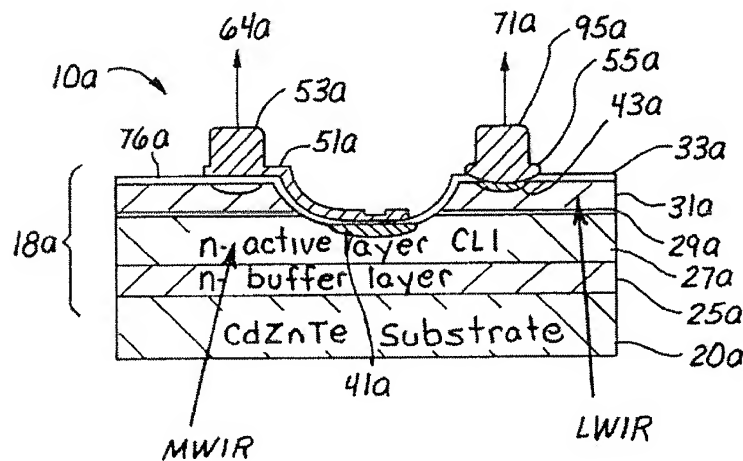


Fig. 4

In contrast, claim 52 provides for “a portion of [a] second light conductor over said planar surface of [a] first light conductor has a thickness approximately equal to $\lambda/2 * N$, wherein λ refers to a particular wavelength of light entering the microlens, and N refers to an index of refraction associated with the second light conductor, the planar surface capable of reducing cross-talk between adjacent photosensitive regions by *spectral reflectance*,” not, as taught by Tennant, by absorption. In fact, Tennant teaches the opposite of that claimed. Furthermore, Tennant, alone or in combination with Yamamoto, fails to disclose the thickness by which the planar surface of the first

light conductor is capable of reducing cross-talk; indeed, Tennant has no planar surface of a first light conductor.

Accordingly, even if combined, Tennant and Yamamoto fail to disclose, teach, or suggest each and every limitation of claim 52. Applicant respectfully requests that the rejection be withdrawn, and the claim allowed.

Claims 56, 57, and 58 depend from claim 52, and are allowable over the cited references for at least the same reasons discussed above with respect to claim 52, and on their own merits. Accordingly, Applicant respectfully requests that the rejection be withdrawn, and the claims allowed.

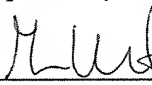
New claims 59, 60, 61, and 62 depend from claim 52, and are allowable over the cited references for at least the same reasons discussed above with respect to claim 52, and on their own merits. Accordingly, Applicant respectfully requests that claims be allowed.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. M4065.0735/P735.

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